

Appl. No. 10/711,538
Amdt. dated March 14, 2006
Reply to Office action of December 16, 2005

Amendments to the Claims:

1. (currently amended) A low noise amplifier (LNA) for filtering an input signal to generate an output signal, comprising:
5 a switched loading circuit comprising a plurality of loading units, each of the loading units determining a corresponding center frequency of the LNA, the switched loading circuit for selectively enabling at least one loading unit having the corresponding center frequency;
10 at least one converter coupled to the switched loading circuit for converting the input signal into a loading current and passing the loading current through the enabled loading unit to generate the output signal; and
 a gain controller for controlling the at least one converter according to a desired gain.
2. (original) The LNA of claim 1, wherein the loading units include a first loading unit and a second loading unit, and the switched load circuit further comprises:
15 a first switch coupled to the first loading unit and the converter, wherein if the first switch is switched on, the first loading unit is coupled to the at least one converter;
 and
 a second switch coupled to the second loading unit and the converter, wherein if the second switch is switched on, the second loading unit is coupled to the at least
20 one converter.
3. (original) The LNA of claim 3, wherein each of the loading units comprises an inductor.

Appl. No. 10/711,538
Amdt. dated March 14, 2006
Reply to Office action of December 16, 2005

4. (original) The LNA of claim 3, wherein each of the loading units further comprises a capacitor coupled to the inductor in parallel.

5. (original) The LNA of claim 4, wherein each of the loading units further comprises a resistor coupled to the inductor in series.

6. (canceled)

6 7. (currently amended) The LNA of ~~claim 6~~ claim 1, wherein the at least one converter comprises a controlled loading unit for adjusting the input impedance to a predetermined value.

PN 7 8. (original) The LNA of claim 1 being applied to a wideband communication system.

15 8 9. (original) A low noise amplifier (LNA) for filtering an input signal to generate an output signal, comprising:

a switched loading circuit comprising a plurality of loading units, each of the loading units determining a corresponding center frequency, the switched loading circuit for selectively enabling at least one loading unit;

20 a first converter coupled to the switched loading circuit for converting the input signal into a first loading current; and

a second converter coupled to the switched loading circuit for converting the input signal into a second loading current;

wherein the output signal is generated according to the first loading current or the

Appl. No. 10/711,538
Amdt. dated March 14, 2006
Reply to Office action of December 16, 2005

second loading current or both.

9 ⁸ 10. (currently amended) The LNA of claim ⁸ 9, wherein the ~~controlled~~-loading unit is enabling according to the operation situation of the first and the second converters.

5 ⁸ 10 11. (original) The LNA of claim ⁸ 9, further comprising:

a controlled loading unit for adjusting the input impedance of the LNA to a predetermined value.

PN 10 11 ⁸ 12. (original) The LNA of claim ⁸ 9, further comprising:

a gain controller for driving the first and the second converters according to a desired gain.

12 13. (currently amended) A low noise amplifying method for filtering an input signal to generate an output signal, comprising:

providing a plurality of loading units, each of the loading units determining a corresponding center frequency;

selectively enabling at least one loading unit; and

converting the input signal into a loading current and passing the loading current

20 through the enabled loading unit to generate the output signal; and

converting the input signal into a second loading current and passing the second loading current through the enabled loading unit according to a desired gain to generate the output signal.

Appl. No. 10/711,538
Amdt. dated March 14, 2006
Reply to Office action of December 16, 2005

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14. (original) The method of claim ~~13~~¹², wherein the loading units include a first loading unit and a second loading unit, and the step of selectively enabling comprises:
providing a first switch and a second switch;
5 switching on the first switch to enable the first loading unit; and
switching on the second switch to enable the second loading unit.

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15. (original) The method of claim ~~13~~¹², wherein each of the loading units comprises an inductor.

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16. (original) The method of claim ~~15~~¹⁴, wherein each of the loading units further comprises a capacitor coupled to the inductor in parallel.

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17. (original) The method of claim ~~16~~¹⁵, wherein each of the loading units further comprises a resistor coupled to the inductor in series.

18. (canceled)

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19. (original) The method of claim ~~13~~¹² further comprising:
20 controlling a controlled loading unit to match the input impedance to a predetermined value.

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20. (currently amended) The method of claim ~~9~~¹² claim 13 being applied to a wideband

Appl. No. 10/711,538
Amdt. dated March 14, 2006
Reply to Office action of December 16, 2005

communication system.

¹⁹ 21. (new) A low noise amplifier (LNA) for filtering an input signal to generate an output signal, comprising:

5 a switched loading circuit comprising a plurality of loading units, each of the loading units determining a corresponding center frequency of the LNA, the switched loading circuit for selectively enabling at least one loading unit having the corresponding center frequency; and

^{PN} 10 at least one converter coupled to the switched loading circuit for converting the input signal into a loading current and passing the loading current through the enabled loading unit to generate the output signal;

wherein each of the loading units comprises:

an inductor;

a capacitor coupled to the inductor in parallel; and

15 a resistor coupled to the inductor in series.

²⁰ 22. (new) The LNA of claim ¹⁹ 21, wherein the at least one converter comprises a controlled loading unit for adjusting the input impedance to a predetermined value.

²¹ 20 23. (new) The LNA of claim ¹⁹ 21, further comprising:

a gain controller for driving the first and the second converters according to a desired gain.

Appl. No. 10/711,538
Amdt. dated March 14, 2006
Reply to Office action of December 16, 2005

²²~~24~~. (new) A low noise amplifying method for filtering an input signal to generate an output signal, comprising:

providing a plurality of loading units, each of the loading units determining a corresponding center frequency;

5 selectively enabling at least one loading unit;

converting the input signal into a loading current and passing the loading current through the enabled loading unit to generate the output signal; and

wherein each of the loading units comprises:

an inductor;

^{PN} 10 a capacitor coupled to the inductor in parallel; and

a resistor coupled to the inductor in series.

²³~~25~~. (new) The method of claim ²²~~24~~, wherein the loading units include a first loading unit and a second loading unit, and the step of selectively enabling comprises:

15 providing a first switch and a second switch;

switching on the first switch to enable the first loading unit; and

switching on the second switch to enable the second loading unit.

²⁴~~26~~. (new) The method of claim ²²~~24~~ further comprising:

20 converting the input signal into a second loading current and passing the second loading current through the enabled loading unit according to a desired gain to generate the output signal.

Appl. No. 10/711,538
Amdt. dated March 14, 2006
Reply to Office action of December 16, 2005

25 27. (new) A low noise amplifying method for filtering an input signal to generate an output signal, comprising:

providing a plurality of loading units, each of the loading units determining a corresponding center frequency;

5 selectively enabling at least one loading unit;

converting the input signal into a loading current and passing the loading current through the enabled loading unit to generate the output signal; and

converting the input signal into a second loading current and passing the second loading current through the enabled loading unit according to a desired gain to generate the output signal.

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26 28. (new) A low noise amplifier (LNA) for filtering an input signal to generate an output signal, comprising:

15 a switched loading circuit comprising a plurality of loading units, each of the loading units determining a corresponding center frequency of the LNA, the switched loading circuit for selectively enabling at least one loading unit; and

at least one converter coupled to the switched loading circuit for converting the input signal into a loading current and passing the loading current through the enabled loading unit to generate the output signal;

20 wherein the converter comprises:

a transistor; and

an inductor coupled to the transistor in series.

27 29. (new) The LNA of claim 28, wherein the at least one converter comprises a controlled

Appl. No. 10/711,538
Amdt. dated March 14, 2006
Reply to Office action of December 16, 2005

loading unit for adjusting the input impedance to a predetermined value.

pw ²⁸ 30. (new) The LNA of claim ²⁶ 28, further comprising:

a gain controller for driving the first and the second converters according to a desired
5 gain.